

REMARKS

Reconsideration and allowance of the subject application in view of the foregoing amendments and the following remarks is respectfully requested. Entry of this Response Under Rule 116 is merited as it raises no new issues and requires no further search.

Claims 1-8 and 10-19 remain pending.

Withdrawal of the Examiner's 35 U.S.C. 112, second paragraph rejection of claims 3 and 7 is noted with appreciation.

The Brenner reference (U.S. Patent 6,658,449 to Brenner, et. al.) fails to anticipate the subject matter of the present invention as claimed in claim 1 as Brenner fails to include every element of the claims, either directly or inherently. Brenner fails to include: (1) transferring a thread from a source state processor queue to a sink state processor queue; and (2) transferring the thread if one processor is in a source state and one processor is in a sink state.

At the outset, it is important to distinguish between the processor load and the state of the processor. The processor state is not determined by the processor load, i.e., the heaviest loaded processor is not necessarily a source state processor and the lowest loaded processor is not necessarily a sink state processor. The Examiner is referred to page 8, line 18 through page 9, line 22 of the instant specification for a description of processor state and processor load, and more specifically, to page 9, lines 12-20, for a description of one embodiment's use of the processor state and processor load information.

With respect to (1) above, Brenner describes moving unbound threads to a global run queue and not to a sink state processor. In Brenner, there is no requirement that at least one processor be in a sink state prior to transferring a thread from the queue of a source state processor to the global run queue. The lack of identifying a sink state processor to which threads may be transferred is highlighted by Brenner's reliance on a probability of whether threads

moved to the global run queue will be able to reach a processor able to execute the threads, e.g., “a greater likelihood that they will be assigned to a local run queue for a CPU . . . able to dispatch them.” Brenner at column 8, lines 7-10 (emphasis added). Because Brenner fails to determine if at least one of the processors is in a sink state, Brenner cannot move an unbound thread to a sink state processor as claimed in claim 1.

With respect to (2) above and in conjunction with the immediately preceding arguments regarding (1), Brenner describes moving unbound threads to a global run queue without determining if a processor is in a sink state. Brenner fails to determine if a processor is in a sink state prior to transferring the thread. Neither of steps 1140 and 1150 of FIG. 11 of Brenner describe determining a processor is in a sink state. Specifically, step 1140 “determines if the time stamp indicates that the unbound thread has been pending in a local run queue for longer than a threshold amount of time” (Brenner at column 11, lines 9-12) and step 1150 requeues any affirmatively determined thread resulting from step 1140 to a global run queue. Thus, Brenner fails to determine if a processor is in a sink state in order to transfer a thread from a source state processor queue to a sink state processor queue.

Further, Brenner at column 7, lines 9-19, additionally fails to describe (1) or (2) above as lines 9-19 describe only local run queues with the highest and lowest load averages and neither a source state processor queue nor a sink state processor queue as claimed in claim 1. The highest and lowest load averages do not correspond to whether a processor queue is in a sink state or a source state, i.e., it is possible for a source state processor to have a low load value and a sink state processor to have a high load value.

For any of the above reasons, claim 1 is patentably distinguishable from Brenner and the rejection should be withdrawn.

Claims 3 and 5-7 depend from claim 1, incorporate further important limitations, and are patentable over Brenner for at least the reasons advanced above with respect to claim 1. The rejection of claims 3 and 5-7 should be withdrawn.

Further with respect to claim 7, in view of the above arguments with respect to claim 1, neither column 12, lines 66-67 nor column 13, lines 1-2 of Brenner describes the state of the processor, i.e., source or state, as claimed in claim 7. As the Examiner has failed to identify where in the reference the claim 7 limitation is described per Applicant's prior request, claim 7 is deemed patentable over Brenner and the rejection is requested to be withdrawn.

Claim 8 is patentable over Brenner as Brenner fails to disclose a processor score being a function of the processor state. Step 1040 of Figure 10 of Brenner describes determining a load factor for a heaviest and lightest loaded local run queue where the load factor is the number of threads on the local run queue. As described above with respect to similar language of claim 1, Brenner fails to determine a processor state, i.e., sink or source, in determining a score for each processor. Thus, for reasons similar to claim 1 above, claim 8 is patentable over Brenner and the rejection should be withdrawn.

Claim 9 was cancelled as a result of Applicant's previous Amendment filed March 30, 2004.

Claim 10 depends from claim 8, incorporates further important limitations, and is patentable over Brenner for at least the reasons advanced above with respect to claim 8. The rejection of claim 10 should be withdrawn.

Claims 12 and 13 are patentable over Brenner for at least reasons similar to those advanced above with respect to claim 1 and the rejection should be withdrawn.

Claim 15 depends from claim 12, incorporates further important limitations, and is patentable over Brenner for at least the reasons advanced above with respect to claim 12. The rejection of claim 15 should be withdrawn.

Claim 16 depends from claim 12, incorporates further important limitations, and is patentable over Brenner for at least the reasons advanced above with respect to claim 12 and for reasons similar to those advanced above with respect to claim 7 above. The rejection of claim 16

should be withdrawn.

Claim 18 depends from claim 13, incorporates further important limitations, and is patentable over Brenner for at least the reasons advanced above with respect to claim 13. The rejection of claim 18 should be withdrawn.

Claim 19 depends from claim 13, incorporates further important limitations, and is patentable over Brenner for at least the reasons advanced above with respect to claim 13 and for reasons similar to those advanced above with respect to claim 7 above. The rejection of claim 19 should be withdrawn.

Brenner, with or without the asserted knowledge of one of ordinary skill in the art, fails to render obvious the method as claimed in claim 2 as Brenner fails to describe a processor state as described above with respect to claim 1. Further, the Examiner has failed to identify any teaching or reasoning for the statement that a person of ordinary skill in the art would recognize a neither state for a processor. Use of the language of the instant specification, page 9, lines 1-3, suggests reliance on applicant's present invention to make the asserted modification. The Examiner was requested to identify a teaching, suggestion, or motivation in a reference or to provide an affidavit of facts within the personal knowledge of the Examiner per MPEP §2144.03. The Examiner has provided neither a reference teaching nor an affidavit as the assertion is based on hindsight reasoning and therefore the rejection should be withdrawn.

Contrary to the Examiner's assertion, an idle processor is not necessarily a neither state processor as an added thread will not necessarily cause the added thread to start to starve immediately. For either of the above reasons, claim 2 is patentable over Brenner and the asserted knowledge of one of ordinary skill in the art and the rejection of claim 2 should be withdrawn.

Claim 4 depends from claim 1, includes further important limitations, and is patentable over Brenner for at least the reasons advanced above with respect to claim 1. Thus, the rejection of claim 4 should be withdrawn.

Brenner, with or without the asserted knowledge of one of ordinary skill in the art, fails to render obvious the method as claimed in claim 11 as Brenner fails to describe a processor state as described above with respect to claims 1 and 8. Further, the Examiner has failed to identify any teaching or reasoning for the statement that a person of ordinary skill in the art would recognize a neither state for a processor. The Examiner was requested to identify a teaching, suggestion, or motivation in a reference or to provide an affidavit of facts within the personal knowledge of the Examiner per MPEP §2144.03. The Examiner has provided neither a reference teaching nor an affidavit as the assertion is based on hindsight reasoning and therefore the rejection should be withdrawn.

Further, the Examiner has failed to identify a teaching, suggestion, or motivation in any reference teaching or suggesting weighting a processor state more heavily than a processor load. Nor has the Examiner provided an affidavit supporting such an assertion as required by MPEP §2144.03.

Furthermore, as described at the outset, the loading of the processor is not necessarily determinative of the processor state. The assertion by the Examiner that the state of the processor is important in determining whether to transfer threads from a heavy load to a light load is unsupported and incorrect as claim 11 includes, among others, a situation in which a thread may be transferred from a lightly loaded processor to a heavily loaded processor based on the processor state or a situation in which a thread may not be transferred from a heavily loaded processor to a lightly loaded processor based on the processor state. That is, the Examiner has failed to demonstrate the importance of the state of the processor in the proffered assertion.


For any of the above reasons, claim 11 is patentable over Brenner and the asserted knowledge of one of ordinary skill in the art and the rejection of claim 11 should be withdrawn.

All objections and rejections having been addressed, it is respectfully submitted that the present application should be in condition for allowance and a Notice to that effect is earnestly solicited.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 08-2025 and please credit any excess fees to such deposit account.

Respectfully submitted,

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